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09/823,162	03/30/2001	Mauro Colombo	G93-059	8115

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EXAMINER

CADUGAN, ERICA E

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 05/29/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

22

Office Action Summary

Application No.

09/823,162

Applicant(s)

COLOMBO, MAURO

Examiner

Erica E Cadugan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Faxing of Responses to Office Actions

1. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9302 or, for responses after final rejection only, to (703) 872-9303. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Claim Objections

2. Claim 27 is objected to because of the following informalities: in line 3, "is" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 26 and 28-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "rapid" in claim 26 is a relative term which renders the claim indefinite. The term "rapid" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 28, it is unclear as set forth in the claim whether “means for controlling rotation of the rotating support around the second axis” is the same such means set forth in claim 21. If so, Examiner suggests inserting --the-- or --said-- prior to “means” in line 2 of claim 28.

As set forth in claims 29 and 31, it is unclear how many of the “means for selectively locking...” there are, as a “second means for selectively locking...” is claimed, but no “first” such means is set forth. Examiner suggests changing “second” in the penultimate line of claim 29 and in lines 12 and 13 of claim 31 to --locking-- for clarity. Note that this would also necessitate a similar change in claim 30, line 2.

Claim Rejections - 35 USC § 102

5. Claims 16, 18-23, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,709,465 (Lewis et al.)

Lewis et al. teaches a machine tool ram or “structure” that moves along X, Y, and Z axes (Figures 1-2, col. 7, lines 14-21). Located within the ram and thus “fitted thereto” for rotation about the longitudinal C axis (shown in Figures 1-2 as the vertical direction) is drive shaft or “first support” 40. Interchangeable spindle units or “chuck units” 54 are connected to or “fitted to” the drive shaft 40 (Figures 2 and 4-5). Note that the drive shaft 40 is rotated about its own “first” axis, and additionally, the device is “designed to allow” positioning around a second axis B, which is a vertical axis parallel to the first axis (Figures 3.3-5, col. 4, lines 40-55. for example).

Regarding claims 18-20, note that Lewis et al. teaches driving motor 43 for driving shaft 40 which in turn drives units 54 (Figure 1, col. 3, lines 3-13).

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Regarding claim 21, Lewis also teaches a “rotating support” or drumhead 36 fitted to shaft 40 (Figure 3.3, col. 3, lines 14-18, for example) whose rotation is “controlled” (col. 3 for example).

Regarding claim 22, note that the units 54 are connected to electrical connectors 136 and fluid connectors 138 located on the drumhead 36, and that some of the fluid connectors are for hydraulic fluid (Figures 3.3, 3.2, col. 6, lines 18-34). Additionally, regarding claims 21 and 23, Lewis teaches plural grippers 82 that grip plural knobs or “shafts” 90 of units 54 in order to retain or “lock” the units 54 (Figures 4-5, col. 3, line 60 through col. 4, line 21).

Regarding claim 27, note that Lewis teaches a “chamber” or sleeve 140 surrounding the drumhead 36, which sleeve has a circumferential inner channel 142 that deforms when pressurized with hydraulic fluid to lock the position of the drumhead 36 (col. 7, lines 29-44, Figure 3.3).

6. Claims 16-21, 24, 28, and 29, those of which were rejected under 35 USC 112 above are as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,385,436 (Corsi, hereinafter ‘436).

‘436 teaches a support arm 1 or “structure” movable along three Cartesian axes (col. 1, lines 33-40 for example). Connected to the “structure” 1 is a fork or “first support” 2 that rotates about a “first” axis C via thrust bearing 34 (Figure 1). Chuck 4 “projects” from the fork 2 (Figure 1) and “allows” angular positioning thereof about axis A via bearings 7 (Figure 1). Note that A and C are perpendicular axes (Figure 1). Regarding the interchangeability of the chuck, chuck 4 is considered to be “interchangeable” in that it is “able” to be interchanged with another chuck, i.e., by manually replacing the chuck 4 shown in Figure 1 with another one.

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Regarding claims 18-20 and 24, note that fork 2 “incorporates” a power transmission system including bevel gear pairs 12, 13, etc (Figure 1) connected ultimately to motor 8, and that this power transmission system is coupled to the chuck 4 (Figure 1).

Regarding claim 21, note that hub 6, for example, is a support that rotates via the bearings 7.

Regarding claim 28, note that the rotation about axis A is “controlled” (col. 3, lines 58-66).

Regarding claim 29, note that the rotational position is fixed or “locked” via racks (col. 1, lines 49-55).

Claim Rejections - 35 USC § 103

7. Claims 25-26, 26 is as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,385,436 (Corsi, hereinafter ‘436) as applied to claims 16, 21, and 24 above, and further in view of U.S. Pat. No. 4,652,190 (Corsi, hereinafter ‘190).

‘436 teaches all aspects of the claimed invention as described in the above rejection based thereon, but does not teach any sort of “ring-shaped chamber connected on one side to exhausting devices and on the other to ducts”.

‘190 teaches a spindle device including a fork housing 1 that has mounted thereto a prop unit 2 for a mandrel 3 used to rotate a cutting tool (col. 2, lines 20-24, Figures 2, 4). ‘190 teaches that the fork housing 1 contains a ring chamber 9 (Figure 2) connected on the left side (as viewed in Figure 2) to a suction or “exhausting” device (col. 2, lines 41-46) and connected on the right side thereof (as viewed in Figure 2) to ducts 8 and 10 (Figures 2-3) that terminate “close” to the tool at opening 7 in order to remove the dust machined by the tool (col. 3, lines 25-47).

Regarding claim 26, note that the duct 10 is “coupled” to the ring chamber 9 (Figure 2), that the duct 8 is integral with unit 2 (Figure 2), the duct 8 is coupled to the duct 10, and that the duct 8 rotates with prop unit 2 relative to the duct 10 in fork housing 1 (Figures 2-3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the chip/dust exhausting device taught by ‘190 to the spindle device taught by ‘436 for the purpose of providing a device for removing machined dust or chips that can be hazardous to the health of the machine operator (col. 1, lines 44-47 of ‘190, for example).

Claim Rejections - 35 USC § 102/103

8. Claims 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,538,375 (Kwapisz), or in the alternative, as being obvious over 5,538,375 (Kwapisz) in view of U.S. Pat. No. 5,678,291 (Braun).

Kwapisz teaches a spindle positioning device (Figure 1). Principle body or “structure” 2 is connected to a milling machine for sliding movement in relationship thereto (Figure 1, col. 3, lines 50-56). Regarding the movement along three Cartesian axes, it is noted that this is a functional limitation, and there is no structure set forth in the claim for facilitating or performing any such movement. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. See MPEP Section 2112.01. Thus, in the instant case, since Kwapisz does not “teach away” from moving the structure 2 along a set of “three Cartesian axes”, this function is presumed to be inherent.

Additionally, Kwapisz teaches an interposed piece or “first support” 5 fitted to the structure such that it rotates about “first” axis XX’ (Figures 1-2). Note that spindle 4 is “fitted

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to” the “first support” 5, and that spindle 4 receives a milling cutter therein (col. 3, lines 55-57) and is thus considered to include a “chuck”. Note also that the cutter, and thus the chuck, rotates about “second” axis YY’ (Figures 1-2, col. 3, lines 55-57) shown in the figures as perpendicular to axis XX’.

Regarding claim 18, note for example, that interposed piece 5 includes pinions 8 driven by a pinion motorization means found within box 9 (col. 4, lines 15-20, Figure 1).

Regarding the “interchangeable” chuck, it is noted that as set forth in the claims, the chuck of spindle 4 is considered “interchangeable” in that it is “able” to be changed, e.g., by physically removing it from the spindle holder 3 and replacing it with another one.

Regarding claims 19-20, note that spindle 4, and thus also the chuck, are rotated by transmission shaft 21 driven by a gear box, i.e., motor (col. 4, lines 56-64, Figure 1).

In the alternative, Kwapisz is silent about the axes of movement of the body 2, and does not specifically describe the structure of the milling machine to which the body is attached.

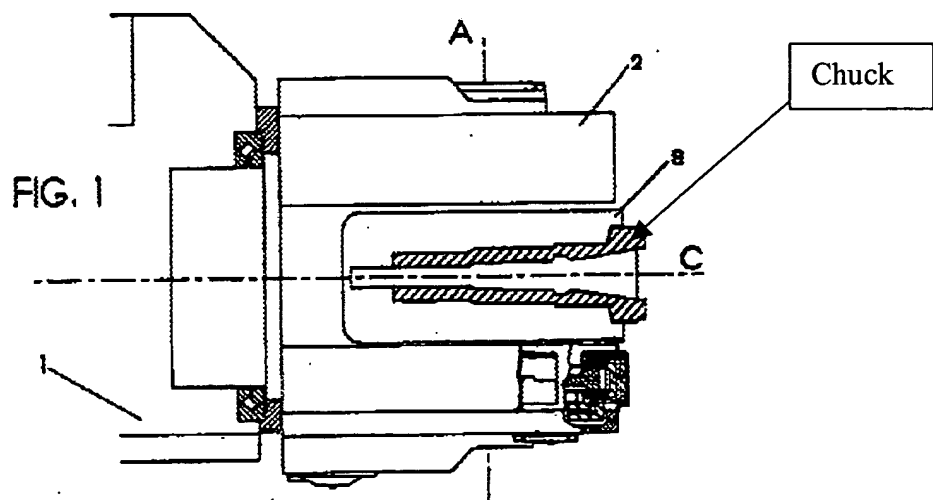
However, Braun teaches a machining head 37 of a milling device that is movable along three Cartesian axes (Figures 1-2). Braun specifically teaches that the supporting structure for the machining head described is arranged advantageously to permit easy accessibility to all drive elements for maintenance work (col. 3, lines 5-15, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the specific milling machine providing three Cartesian axes of movement of the milling head taught by Braun for the generic milling machine taught by Kwapisz for the purpose of permitting easy accessibility to all drive elements for maintenance work as taught by Braun.

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9. Claims 29-30, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Pat. No. 5,286,146 to Corsi (hereinafter '146) or, in the alternative, under 35 U.S.C. 103(a) as obvious over '146 in view of U.S. Pat. No. 5,322,494 (Holtey et al.).

'146 teaches a "first support" 2 adapted for rotation about a "first axis" C and mounted on a structure 1 movable in a set of three Cartesian axes (Figures 1 and 3, col. 1, lines 6-40, for example). Additionally, the chuck structure labeled as "3", shown in Figures 1 and 3 is considered the "second support", and is rotatably mounted to the "first support" 2 for rotation about axis A which is orthogonal to axis C (Figures 1 and 3). Note that the chuck structure 3 has mounted therein a chuck, or tool holding device, labeled "Chuck" in the reproduction of Figure 1 below.



This "chuck" is considered to be "interchangeable" in that it is "able" to be interchanged, i.e., since it is composed of pieces that are separate or non-unitary with the rest of the chuck structure 3, it is able to be removed therefrom and replaced with another chuck. Note that the aforescribed "chuck" is shown as projecting beyond the end of the chuck structure 3 in Figure

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1. Note that the “chuck” inherently must be driven by some sort of drive (and thus it must inherently be “coupled” to such a drive) in order for a tool held thereby to be able to rotate about its own axis and thereby machine a workpiece. Alternatively note that the chuck structure 3 (and the “chuck”) are driven about axis A via a drive motor and gear which are coupled to a cogwheel 4 that is integral with the chuck structure 3 (col. 2, lines 24-34), and which is thus “connected to” the “chuck” of the chuck structure 3. Note that this drive motor and gear system thus “control” the rotation of the “second support” 3 about axis A. Additionally, ‘146 teaches a device for selectively locking the “second support” 3 in a desired orientation about axis A, which locking device includes pads 5 that are pressed against the sides of cogwheel 4 via hydraulic fluid to “frictionally” lock the “second support” (col. 2, lines 35-47 and 58-64, for example).

Regarding claim 30, note that the locking device includes a pipe 7 along which the pressurized fluid is conveyed (col. 2, lines 39-42), which pipe 7 inherently has walls which are “able” to be deformed. Note that the introduction of pressurized fluid into the pipe will inherently, however minimally, deform the walls of the pipe since such introduction of fluid would apply a force to the pipe. Note that such fluid introduction also serves to “frictionally lock the second support” via the pads 5 described above.

Alternatively, ‘146 is silent about the drive of the tool held by the “chuck” of “second support” 3.

Holtey et al. teaches a plurality of interchangeable spindle units 23 that are interchangeably mounted to a motorized driver 25 (which includes high speed motor 19 and a support and coupling section 21, see col. 6, lines 49-54 and Figures 6 and 1-3) of a universal transfer apparatus 113 that is operable to move the motorized driver 25 along three Cartesian

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axes (col. 11, lines 10-15 and Figure 6). Holtey specifically teaches that the use of these interchangeable spindle units 23 instead of the conventional system where a tool is held by a conventional tool holder provides the advantage that the spindle bearings may be smaller (col. 4, lines 6-20), thus permitting operation of the tool at higher speeds (col. 4, lines 6-20), thus resulting in better finish cuts, faster removal of material, and less vibration or chatter where a thin web of material is being cut (col. 1, lines 20-25).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted a motorized driver and series of interchangeable spindles as taught by Holtey et al. for the conventional tool holder or "chuck" and the chuck structure 3 taught by '146 for the purposes of creating better finish cuts, removing material faster, and creating less vibration or chatter as specifically taught by Holtey et al. (col. 4, lines 6-20 and col. 1, lines 20-25).

Allowable Subject Matter

10. Claim 31 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

11. Claim 32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. Regarding claim 31, U.S. Pat. No. 5,286,146 (Corsi, hereinafter '146) is representative of the closest prior art of record to claim 31, and has been described in detail above. However, note that in the locking device taught by '146, the "chamber" 7 is not "fitted around" the "second support" 3. Thus, '146 does not anticipate the invention as set forth in claim 31.

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Additionally, there is no teaching in the prior art combinable with '146 that would motivate one of ordinary skill to so modify '146, and thus '146 does not render obvious the present invention as set forth in independent claim 31.

Response to Arguments

13. Applicant's arguments filed 2/6/2003 have been fully considered but they are not persuasive. Many of Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection, and accordingly, applicant's attention is directed to the above rejections. However, Examiner will address those arguments which still pertain.

14. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the machine tool operating head has a "removable chuck, which permits quick switching between tasks when using a tooling machine having what is referred to as 3+2 degrees of freedom of movement") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Note that most of Applicant's arguments in general appear to be directed to the fact that Applicant believes that none of the references show an "interchangeable chuck", which interchangeable chuck enables "rapid changing of the tool". However, firstly it is noted that no language relating to the speed of the change has been set forth in the claims, and that limitations from the specification are not read into the claims, and that inserting language such as "quick-change" into the claims would create an issue with respect to 35 USC 112, second paragraph as this is a relative term not defined by the specification and where one of ordinary skill would not

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know exactly what was encompassed by the term. Secondly, note that “interchangeable chuck” is sufficiently broad to cover any chuck that is “able” to be interchanged, whether or not the entire device would have to be taken apart to perform such an interchange, and thus, Applicant has not provided any claim language to define in this way over the references described in the office actions.

Regarding the Lewis reference, it is noted that Applicant has asserted that the shaft 40 “cannot constitute a first support part of the operating head” because it is located “wholly within and forms part of the ram 20”. However, Applicant’s reasoning is unclear. The shaft 40 or “first support” is “rotatably fitted to” the “structure” or ram 20, and thus meets the claim language. Note that just because the shaft 40 is located within ram 20, that doesn’t mean that shaft 40 is not rotatably connected to the ram 20.

Applicant has also asserted that “ram 20 is not an operating head”. Applicant’s point is unclear. As set forth in claim 16 for example, Applicant is claiming an “operating head...having a structure”, “the operating head comprising a first support...a chuck unit...”, which claim limitations are met by Lewis as described above.

Applicant has also asserted that in Lewis, “spindle heads 54 do not include a removable chuck unit as part of the spindle head 54”. However, as described above, the spindle heads 54 **constitute** (emphasis added) removable chuck units.

Regarding the B axis of Lewis and Applicant’s discussion of how the nutating spindle of Goode that Lewis reference operates, it is noted that Applicant has asserted that the spindle head of Goode “does not rotate about the second axis, but merely oscillates or vibrates along the axis”. However, this is not how Goode in particular describes the operation of such a nutating spindle,

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nor is this consistent with Lewis' disclosure relating to the B-axis coupling socket member 96 and the drive 97 therefor. Note that the nutation described by Goode is not an oscillation or vibration **along** the B-axis, but is an eccentric rotation **about** (emphasis added) the B-axis (see Goode, column 3, lines 28-40, for example). Note also that Lewis shows in Figure 1 the socket 96 at a lower portion of the ram 20, which socket is geared to the driveshaft 40, and the axis of which socket is offset from the driveshaft (see Figure 1).

Regarding the remainder of Applicant's assertions with respect to the Goode reference, it is noted that Goode was not relied upon to teach any of the limitations asserted by Applicant, e.g., the removable chuck unit.

Regarding '436, Applicant has asserted that '436 "does not, among other things, teach a removable chuck unit". Again, the claim language "interchangeable chuck unit" is sufficiently broad to cover any chuck that is "able" to be interchanged, whether or not the entire device would have to be taken apart to perform such an interchange, and thus, Applicant has not provided any claim language to define in this way over the references described in the office actions. Thus, Applicant's assertion that the structure of '436 "would prevent removal of the chuck 4 without complete disassembly of the operating head" is not persuasive, since there is no claim language **precluding** a device wherein the chuck is interchanged by completely disassembling the operating head. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Likewise, the chuck 4 of Kwapisz '375 is considered to be an "interchangeable" chuck, in that it is "able" to be changed, e.g., by physically removing it from the spindle holder 3 and

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replacing it with another one. Applicant has asserted that Kwapisz "never discloses that they are intended to separable or that the spindle is changeable". However, this is not persuasive since it doesn't change the fact that the chuck is "able" to be interchanged, whether or not this requires disassembly of some part of the operating head, etc.

Regarding Applicant's assertions that Corsi '190 and Braun '291 don't teach the interchangeable chucks, it is noted that these references were not relied upon for these features.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 6,514,183 teaches a machine with a structure supporting a "first support" 20 that rotates about a first axis (perpendicular to the face 19, see Figure 1), and also teaches a "chuck unit" 28 that removably fits to the "first support" 20 and which rotates about a vertical axis as viewed in Figure 1. U.S. Pat. No. 5,823,722 and JP 1-222809 also teach cutting devices with angularly adjustable heads.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (703) 308-6395.

The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (703) 308-2159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.



eec

May 21, 2003


A. L. WELLINGTON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER